

What is claimed is:

1. A pasteurization system, comprising:
 - a) an enclosure defining a heating chamber;
 - b) a liquid flow conduit positioned within the heating chamber, the conduit having an inlet and an outlet and defining a flow path for a slurry to be pasteurized from said inlet toward said outlet at a predetermined rate for establishing a minimum period of residence time of the slurry within said flow conduit sufficient to kill all pathogens in said slurry while the slurry is heated from ambient temperature to a predetermined minimum temperature of between about 145 and 160 degrees F while the slurry traverses the conduit; and
 - c) means for heating, via indirect contact heat transfer, the slurry from ambient temperature to said minimum temperature after said slurry is introduced into said flow conduit, said means for heating positioned inside the heating chamber.
2. The system of claim 1 wherein the means for heating comprises at least one header having a plurality of means for emitting a heat transfer fluid into the heating chamber and to contact the heat transfer fluid with the conduit in a plurality of locations.
3. The system of claim 2 wherein said conduit is comprises a serpentine conduit comprising a plurality of substantially parallel pathways in the heating chamber.
4. The system of claim 2 wherein said heat transfer fluid is selected from the group consisting of water, steam, or combinations thereof.
5. The system of claim 4 wherein said heat transfer fluid is water adapted to have a temperature exiting the header ranging from about 170 F to about 212 F.

6. The system of claim 5 including an inlet water transfer means and an exit water transfer means.

7. The system of claim 1 wherein the heat transfer fluid is a liquid, and the
5 enclosure comprises a sump for spent heat transfer liquid, wherein the system comprises inlet transfer means adapted to deliver said heat transfer fluid and exit transfer means adapted to remove said spent heat transfer fluid.

8. The system of claim 3 wherein at least a first leg of the serpentine conduit
10 is adapted to traverse through spent heat transfer fluid collected in a sump, the sump comprising a lower portion of the enclosure.

9. The system of claim 1 wherein the liquid flow conduit comprises a plurality of conduits, each of the plurality of conduits attached at a first end to an
15 inlet header and at a second end to an exit header.

10. The system of claim 9 wherein the enclosure includes a sump comprising a non-horizontal bottom.

20 11. The system of claim 1 further comprising one or more fuel burners.

12. The system of claim 10 further comprising one or more fuel burners.

13. A pasteurization process comprising:
25 a) providing an enclosure defining a heating chamber, and providing a flow conduit positioned in the heating chamber, the flow conduit having an inlet and an outlet;
b) introducing a flow of a liquid slurry into said conduit at said inlet;
c) introducing into the heating chamber a heat transfer fluid at a first
30 temperature, said first temperature being not less than 160 F;
d) heating said slurry via indirect contact heat transfer from ambient temperature to a predetermined minimum temperature of from about

145 F to about 160 F via indirect contact with said heat transfer fluid while said slurry traverses through the conduit; and

5 e) maintaining said flow of slurry in said conduit at said predetermined temperature for a minimum period of about thirty minutes sufficient to kill substantially all pathogens in said slurry while maintaining a flow of said slurry from said outlet.

14. The process of claim 13 wherein said step of introducing a heat transfer fluid comprises transferring a heat transfer fluid into and out of a sump.

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15. The process of claim 13 wherein said step of introducing a heat transfer fluid comprises providing one or more heat transfer fluid headers in said heating chamber, said headers having a plurality of means for dispensing said heat transfer fluid in said heating chamber.

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16. The process of claim 13 including introducing heated combustion effluent gases into said heating chamber via combustion of a fuel in one or more combustion burners attached to said enclosure.